
शोषक वस्त्र उत्पादों के
अवशोषण के निर्धारण के लिए विधि
(दूसरा पुनरीक्षण)

**Method for Determination of
Absorbency of Absorbent
Textile Materials**
(Second Revision)

ICS 59.060.01

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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textiles Division Council.

This standard was originally published in 1963 and subsequently revised in 1967. The second revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

- a) Amendment 1 has been incorporated;
- b) Apparatus as per the testing procedure has been updated; and
- c) References to Indian Standard has been updated.

Absorbent textile materials, such as cotton gauze and cotton wool, are used mostly for surgical purposes. A cotton material of definite absorbency is necessary for use in surgical and other purposes. A textile material, whose absorbency in terms of seconds is less than 10, is considered as highly absorbent material.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

METHOD FOR DETERMINATION OF ABSORBENCY OF ABSORBENT TEXTILE MATERIALS

(*Second Revision*)

1 SCOPE

This standard prescribes a method for determination of absorbency of absorbent textile materials, such as cotton gauze and cotton wool.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated.

3 PRINCIPLE

The test specimen of specific area or specific volume is placed on the surface of water. The time taken by the specimen to absorb water and sink in it completely is a measure of the absorbency of the test specimen. The shorter the time taken by the specimen to sink in water completely, the greater is its absorbency.

NOTE — In the case of materials with raised surface, the test specimen should be placed with its unraised side towards the surface of water.

4 SAMPLING

4.1 Lot

The quantity of rolls or bundles of absorbent material (such as cotton gauze and cotton wool) delivered to the buyer against a dispatch note shall constitute the lot.

4.2 Unless otherwise agreed to between the buyer and the seller the number of rolls or bundles to be selected at random from the lot shall be as given below:

<i>Lot Size</i>	<i>Sample Size</i>
(1)	(2)
Up to 100	4
101 to 150	5
151 to 300	7
301 to 500	10

4.3 The rolls or bundles selected according to 4.2 shall constitute the test sample.

5 CONDITIONING OF TEST SPECIMENS AND ATMOSPHERIC CONDITIONS FOR TESTING

5.1 Conditioning for Test Specimens

Prior to test, the test specimens shall preferably be conditioned to moisture equilibrium in a standard atmosphere at 65 ± 2 percent relative humidity and 27 ± 2 °C temperature (*see also* IS 196).

5.1.1 When the test specimens have been left in such an atmosphere for 24 h in such a way as to expose, as far as possible, all portions of the specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium.

5.2 Atmospheric Conditions for Testing

The test shall preferably be carried out in the standard atmospheric conditions (*see* 5.1).

6 APPARATUS

6.1 **Wide-Bore Glass Tube**, open at both ends (*see* Fig. 1).

6.2 **Glass Plunger**, solid or closed at the bottom (*see* Fig. 1).

6.3 **Glass Trough**, of suitable size, preferably $20 \times 15 \times 50$ cm.

6.4 **Retort Stand**, with a clamp.

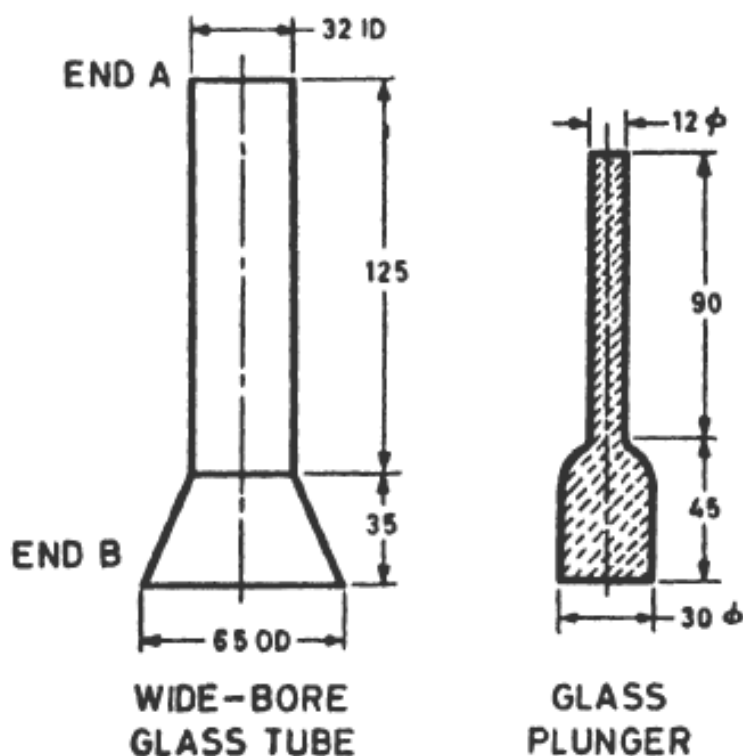
6.5 **Stop-Watch**, reading correct to 0.1 second.

6.6 **Two Glass Plates**, 10×10 cm and 0.75 cm thickness.

6.7 **A Pair of Forceps**

6.8 **Measuring Cylinder**

6.9 **Analytical Balance**, with a resolution of 0.1 mg.



All dimensions in millimetres.

FIG. 1 WIDE-BORE GLASS TUBE (WITH FUNNEL END B) AND GLASS PLUNGER

7 REAGENTS

7.1 Distilled Water, (see IS 1070) maintained at 27 ± 2 °C.

8 PROCEDURE

8.1 Method I — For Cotton Gauze Like Material — (Exposing specific area to, water).

8.1.1 From each roll or bundle in the test sample, draw 5 test specimens each from a single layer and weighing 1 g.

8.1.2 Take one test specimen. Fold it to a square of 5×5 cm. Place it between the glass plates. Place 1 kg weight on the glass plate for 10 min. Remove the weight and the top glass plate. Place the test specimen gently on the surface of water with a pair of forceps. Start the stop-watch when the test specimen touches the surface of water. Stop the stop-watch when the test specimen disappears under the surface of water. Note the time taken.

8.1.3 Repeat the procedure as given in 8.1.2 with the remaining test specimens.

8.1.4 Calculate the average time, in seconds, taken by the test specimens to sink in water.

8.2 Method II — For Cotton Wool Like Material — (Exposing specific volume to water).

8.2.1 From each roll or bundle in the test sample, draw 5 test specimens each weighing 1 g.

8.2.2 Take one test specimen. Hold the wide-bore glass tube vertical on a flat surface with the funnel end B at the top. Transfer the test specimen to the tube. Insert the plunger and gently compress the test specimen to a volume of 20 ml.

NOTE — The tube may be graduated. If not, the test specimen may be compressed to a length of 25 mm in the tube which gives a volume of 20 ml.

8.2.3 Pour the distilled water in the glass trough so that the level of water is 70 mm below the top of the trough.

NOTE — A clearance of 70 mm from the top is necessary to prevent or minimize the air draught acting on the test specimen when it is dropped on the surface of the water.

8.2.4 Fix the glass tube with the test specimen inside the tube on the stand in such a way that the funnel end B is 5 mm above the surface of water in the trough. Insert the plunger from the end A and push slowly the test specimen on the surface of the water. Start the stop-watch when the test specimen touches the surface of water. Stop the stop-watch when the test specimen just disappears under the surface of water. Note the time taken.

NOTE — The test specimen should disappear under the surface of the water when completely saturated with water.

8.2.5 Repeat the procedure given as in **8.2.2** to **8.2.4** with the remaining test specimens.

8.2.6 Calculate the average time, in seconds, taken by the test specimen to sink in water.

9 REPORT

Report the method followed and the average time taken (*see 8.1.4 or 8.2.6*) as the absorbency of the absorbent material in the lot in terms of seconds.

ANNEX A

(*Clause 2*)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
196 : 1966	Atmospheric conditions for testing (<i>first revision</i>)	1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)

ANNEX B*(Foreword)***COMMITTEE COMPOSITION**

Chemical Methods of Test Sectional Committee, TXD 05

<i>Organization</i>	<i>Representative(s)</i>
The Synthetic and Art Silk Mills Research Association, Mumbai	DR MANISHA MATHUR (Chairman)
Ahmedabad Textile Industry's Research Association, Ahmedabad	SHRIMATI DEEPALI PLAWAT SHRI JIGAR DAVE (<i>Alternate</i>)
Bidhata Industries Pvt Ltd, Mumbai	SHRI ROHIT PACHERIWALA R. K. PACHERIWALA (<i>Alternate</i>)
Directorate General of Quality Assurance (CQAT & C), Kanpur	SHRI ANUJ KUMAR SHUKLA SHRI S. J. KOLARKAR (<i>Alternate</i>)
Global Organic Textile Standard, Thane	SHRI RAHUL BHAJEKAR SHRIMATI PRACHI GUPTA (<i>Alternate</i>)
ICAR-Central Institute for Research on Cotton Technology, Mumbai	DR SUJATA SAXENA DR A. S. M. RAJA (<i>Alternate</i>)
In Personal Capacity	SHRI B. S. ACHARYA
Intertek India Private Limited, Mumbai	SHRI NARAYAN B. BORADE SHRI MILIND R. MARATHE (<i>Alternate</i>)
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Office of the Textile Commissioner, Mumbai	SHRI GAURAV GUPTA SHRI SANJAY CHARAK (<i>Alternate</i>)
Raymonds Ltd, Mumbai	SHRI PRABHAT PARASHER SHRI SAURAV SHEKHAR (<i>Alternate</i>)
Reliance Industries Ltd, New Delhi	SHRI M. S. VERMA SHRI MAHESH C. SHARMA (<i>Alternate</i>)
S G S, Mumbai	DR KARTHIKEYAN K. SHRI MICHAEL FRANCIS (<i>Alternate</i>)
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Sunil Industries, Mumbai	SHRI PRADEEP ROONGTA
Testtex India Laboratories Pvt Ltd, Mumbai	SHRIMATI MEETA SHINGALA SHRI MAHESH SHARMA (<i>Alternate</i>)
Texanlab Laboratoires Pvt Ltd, Navi Mumbai	SHRI MILIND R. MARATHE SHRI VIVEK PATIL (<i>Alternate</i>)
Textiles Committee, Mumbai	SHRI KARTIKAY DHANDA DR P. RAVICHANDRAN (<i>Alternate</i>)
The Bombay Textile Research Association, Mumbai	SHRI M. P. SATYANARAYAN SHRIMATI SAROJ VAIRAGI (<i>Alternate</i>)
The Synthetic and Art Silk Mills Research Association, Mumbai	SHRIMATI ASHWINI A. SUDAM SHRIMATI LEENA MHATRE (<i>Alternate</i>)
U P Textile Technology Institute	DR ARUN KUMAR PATRA DR SUBHANKAR MAITY (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
Venture Instrumentation Technologies Pvt Ltd, Bengaluru	SHRI VISHAL VIJAY BABU SHRI NAGARAJ C. (<i>Alternate</i>)
Wool Research Association, Thane	DR MRINAL CHOUDHARI SHRIMATI SAMITA BAIT (<i>Alternate</i>)
BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E' AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary

SHRI DHARMBEER
SCIENTIST 'C' (TEXTILES), BIS

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